

AUTHOR(S): Okuhara, Kunio
CORPORATE SOURCE: Gov. Ind. Res. Inst., Nagoya, Japan
SOURCE: Journal of Organic Chemistry (1978), 43(14), 2745-9
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal
LANGUAGE: English

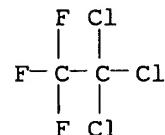
AB In the reaction of CF₂ClCFCl₂ with AlCl₃, the addn. of CS₂, Cl₂C:CHCl, CH₂Cl₂, n-hexane, cyclohexane, etc., effectively inhibited the isomerization into CF₃CCl₃ without significantly retarding substitution, which gives CF₂ClCCl₃. Cyclohexane was also used similarly to obtain CF₃CClBr₂ from CF₃CFBr₂, CF₂BrCCl₂Br from CF₂BrCFClBr, CF₂BrCClBr₂ from CF₂BrCFClBr (with AlBr₃), and CF₂ClCBrCl₂ from CF₂ClCFCl₂ (with AlBr₃). In each of these reactions cyclohexane-methylcyclopentane equilibration as well as formation of a small amt. of a hydride-transfer product, such as CF₂ClCHCl₂, was noted. In the treatment of CF₂ClCFCl₂ with AlCl₃, the isomerization was inhibited by vigorous stirring, discontinuation of which afforded aluminum fluoride ppts. which catalyze the isomerization of fluorohalocarbons. Reactions of CF₂ClCFCl₂ with Al halides in the presence of halomethanes and similar reactions of CF₂BrCFClBr were also studied. The substitution reaction is considered to proceed in soln. via the ion pair CF₂ClC+Cl₂ AlFL-3 without rearrangement, while the isomerization is considered predominantly a surface reaction.

IT 354-58-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 354-58-5 CAPLUS

CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 76-13-1

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with aluminum chloride, isomerization inhibition in, by additives)

RN 76-13-1 CAPLUS

CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)

Cl—CF₂—CCl₂—F

=> sel rn 4
E1 THROUGH E12 ASSIGNED

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	40.55	81.56
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-3.26	-3.26

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FILE COVERS 1907 - 25 Mar 2003 VOL 138 ISS 13
FILE LAST UPDATED: 24 Mar 2003 (20030324/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> file reg	SINCE FILE ENTRY	TOTAL SESSION
COST IN U.S. DOLLARS		
FULL ESTIMATED COST	0.42	81.98
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-3.26

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 24 MAR 2003 HIGHEST RN 500530-01-8
DICTIONARY FILE UPDATES: 24 MAR 2003 HIGHEST RN 500530-01-8

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> s e1-e4
1 127-18-4/BI
(127-18-4/RN)
1 1333-82-0/BI
(1333-82-0/RN)
1 354-58-5/BI
(354-58-5/RN)
1 374-07-2/BI

(374-07-2/RN)
L9 4 (127-18-4/BI OR 1333-82-0/BI OR 354-58-5/BI OR 374-07-2/BI)

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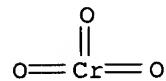
L9 4 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Ethane, 1,1-dichloro-1,2,2,2-tetrafluoro- (9CI)
MF C2 Cl2 F4
CI COM

F—CCl₂—CF₃

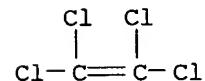
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):3

L9 4 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Chromium oxide (CrO₃) (8CI, 9CI)
MF Cr O₃
CI COM

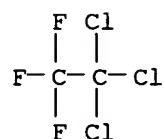


L9 4 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Ethene, tetrachloro- (9CI)
MF C2 Cl4
CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L9 4 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI)
MF C2 Cl3 F3
CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

=> s 354-58-5/prep
 595 354-58-5
 2981417 PREP/RL
 L1 59 354-58-5/PREP
 (354-58-5 (L) PREP/RL)

=> s l1 and (fixed bed or fluidized bed)
 178846 FIXED
 141637 BED
 58505 BEDS
 163038 BED
 (BED OR BEDS)
 16370 FIXED BED
 (FIXED(W) BED)
 61267 FLUIDIZED
 1 FLUIDIZEDS
 61267 FLUIDIZED
 (FLUIDIZED OR FLUIDIZEDS)
 141637 BED
 58505 BEDS
 163038 BED
 (BED OR BEDS)
 54040 FLUIDIZED BED
 (FLUIDIZED(W) BED)
 L2 0 L1 AND (FIXED BED OR FLUIDIZED BED)

=> s l1 and bed
 141637 BED
 58505 BEDS
 163038 BED
 (BED OR BEDS)
 L3 2 L1 AND BED

=> d ibib abs 1-2

L3 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1994:54198 CAPLUS
 DOCUMENT NUMBER: 120:54198
 TITLE: Preparation of trifluoroacetyl chloride by oxidation
 of 1,1-dichloro-2,2-trifluoroethane with molecular
 oxygen over carbon bed
 INVENTOR(S): Jacobson, Stephen E.
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA
 SOURCE: U.S., 3 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5241113	A	19930831	US 1992-945192	19920915
WO 9406744	A1	19940331	WO 1993-US8252	19930909
W: JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 660817	A1	19950705	EP 1993-920458	19930909
R: BE, DE, FR, GB				
JP 09502160	T2	19970304	JP 1993-508106	19930909
PRIORITY APPLN. INFO.:			US 1992-945192	19920915

AB A process for the continuous prodn. of trifluoroacetyl chloride which comprises passing a mixt. of 1,1-dichloro-2,2,2-trifluoroethane and mol. oxygen over a carbon bed maintained at a temp. from 200-325.degree. is claimed.

L3 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1987:638901 CAPLUS
 DOCUMENT NUMBER: 107:238901
 TITLE: Process for fluorinating halogenated organic compounds
 INVENTOR(S): Fujioka, George S.
 PATENT ASSIGNEE(S): Dow Chemical Co., USA
 SOURCE: U.S., 8 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4680406	A	19870714	US 1985-787190	19851015
PRIORITY APPLN. INFO.:			US 1985-787190	19851015

OTHER SOURCE(S): CASREACT 107:238901

AB Halogenated org. compds. are fluorinated in a process comprising injecting HF into a liq. pool of halogenated aliph. or arom. reactant, removing a volatilized mixt. of the reactant and HF, passing the mixt. over a catalyst bed to facilitate formation of a F-contg. compd., and recovering the F-contg. compd. from the catalyst bed. An app. used for fluorination comprised a source of HF, a vessel for holding a liq. pool of feeder reactant, a means for injecting HF from the source into the reactant pool and for removing a fraction of the reactant which is volatilized and mixed with HF, a catalyst bed communicating with the vessel to receive the mixed reactant and HF and to effect formation of F-contg. compds., and a means for recovering the F-contg. compds. from the catalyst bed. Liq. 2,3-dichloro-5-(trichloromethyl)pyridine (I) at 194-204.degree. was fluorinated in such a reactor using HF-I molar ratio 3.6:1 and 9 s residence time (247.degree.), forming a mixt. of 2,3-difluoro-5-(trifluoromethyl)pyridine 0.09, 3-chloro-2-fluoro-5-(trifluoromethyl)pyridine 12.80, 3-chloro-5-(chlorodifluoromethyl)-2-fluoropyridine 0.20, 2,3-dichloro-5-(trifluoromethyl)pyridine 72.40, 2,3-dichloro-5-(chlorodifluoromethyl)pyridine 12.90, and 2,3-dichloro-5-(dichlorofluoromethyl)pyridine 0.50%.

=> s fixed bed or fluidized bed
 178846 FIXED
 141637 BED
 58505 BEDS
 163038 BED
 (BED OR BEDS)
 16370 FIXED BED
 (FIXED(W) BED)
 61267 FLUIDIZED
 1 FLUIDIZEDS
 61267 FLUIDIZED
 (FLUIDIZED OR FLUIDIZEDS)
 141637 BED
 58505 BEDS
 163038 BED
 (BED OR BEDS)

54040 FLUIDIZED BED
(FLUIDIZED(W) BED)
L4 68897 FIXED BED OR FLUIDIZED BED

=> s 14 and alumnum fluoride
19 ALUMNIUM
214877 FLUORIDE
39599 FLUORIDES
229008 FLUORIDE
(FLUORIDE OR FLUORIDES)
0 ALUMINIUM FLUORIDE
(ALUMNIUM(W) FLUORIDE)

L5 0 L4 AND ALUMNIUM FLUORIDE

=> s 14 and (aluminum fluoride or alf3)
767020 ALUMINUM
284 ALUMINUMS
767080 ALUMINUM
(ALUMINUM OR ALUMINUMS)
214877 FLUORIDE
39599 FLUORIDES
229008 FLUORIDE
(FLUORIDE OR FLUORIDES)
6513 ALUMINUM FLUORIDE
(ALUMINUM(W) FLUORIDE)
7029 ALF3
L6 92 L4 AND (ALUMINUM FLUORIDE OR ALF3)

=> s al?/ti and 16
1934094 AL?/TI
L7 52 AL?/TI AND L6

=> d ti 1-5

L7 ANSWER 1 OF 52 CAPLUS COPYRIGHT 2003 ACS
TI Process for preparing aluminum fluoride by
fluorination of alumina

L7 ANSWER 2 OF 52 CAPLUS COPYRIGHT 2003 ACS
TI Property of AlF₃ catalysts prepared by fluorination of
Al₂O₃ with HF

L7 ANSWER 3 OF 52 CAPLUS COPYRIGHT 2003 ACS
TI Manufacture of granules of reactive metals or alloys by
melt-droplet quenching in a fluidized bed

L7 ANSWER 4 OF 52 CAPLUS COPYRIGHT 2003 ACS
TI Industrial experiments of AlF₃ fluidized bed
coolers

L7 ANSWER 5 OF 52 CAPLUS COPYRIGHT 2003 ACS
TI Fluidized-bed process for cleaning and melting of
aluminum scrap contaminated with organics

=> d ibib abs 45-52

L7 ANSWER 45 OF 52 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1964:402277 CAPLUS
DOCUMENT NUMBER: 61:2277
ORIGINAL REFERENCE NO.: 61:334d-e
TITLE: Dehydration of aluminum fluoride

INVENTOR(S): hydrates
PATENT ASSIGNEE(S): Schmidt, Alfred; Weinrotter, Ferdinand
SOURCE: Lentia G.m.b.H.
DOCUMENT TYPE: 2 pp.
LANGUAGE: Patent
PATENT INFORMATION: Unavailable

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1166754		19640402	DE	

PRIORITY APPLN. INFO.: AT 19600218

AB Air streams heated in a fluid bed of **AlF₃** will remove the water of hydration from **AlF₃** hydrates if the contact time is limited to <1 sec. to prevent decomprn. Higher than monohydrates can be dehydrated in steps. For example, a reactor with a fluid bed of anhyd. **AlF₃** 70 mm. in diam. and 150 mm. high is heated externally to 590.degree., while 80 l. air/hr. is passed through. A solid recirculation system feeds 1000 g. **AlF₃.3H₂O** over a 1-hr. period into this bed. **AlF₃** of 99.6% purity is produced with negligible decomprn.

L7 ANSWER 46 OF 52 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1964:58597 CAPLUS

ACCESSION NUMBER: 1995-000
DOCUMENT NUMBER: 60:58597

DOCUMENT NUMBER: 6010248
ORIGINAL REFERENCE NO.: 60:10248a-c

ORIGINAL REFERENCE NO.: 33-10240a
TITLE: Fluoride of aluminum as a by-product of superphosphate manufacture

AUTHOR(S): Weinrotter, F.

SOURCE: Chem. & Ind. India (1963), 14 (8), 598-9

SOURCE: Chem. &
DOCUMENT TYPE: Journal

DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB H₂SiF₆ (15-23%) can be obtained from the tail gases of superphosphate plants with recovery of 12% of the total F as H₂SiF₆. The addn. of 1% hydrated silicic acid is sufficient for optimum yields. The most suitable concn. of H₂SiF₆ is 10-17 wt.% for **AlF₃** prep., with P₂O₅ of the acid .gt;req. 200-300 mg./l. The supersatd. soln. of **AlF₃** is prep'd. by treating the H₂SiF₆ with the Al(OH)₃.nH₂O for 15 min. The pptd. H₂SiF₆ is sepd. by a centrifugal hydroextractor in 8-10 min., inclusive of wash time. The product contains 40% water and the **AlF₃** (about 5% by wt.) is not removable by washing. The **AlF₃** soln. is metastable. Left to itself, the .beta.-**AlF₃.3H₂O** crystallizes within 3-6 days as a hard incrustation. The addn. of seeding crystals, stirring, and 95.degree. temp. during crystn. are necessary. Then 7-10% of the total **AlF₃** remains in soln. in the mother liquor, which is recirculated in the tail-gas washers. The **AlF₃.3H₂O** is then calcined in a two-level **fluidized bed** furnace. The natural overflow of the first level product operating at 240.degree. with 6% water is completely dehydrated at about 600.degree. to <0.3% water on the 2nd level. The finished overflow product is finely crystd. and bagged immediately after a simple air cooling.

1.7 ANSWER 47 OF 52 CAPIUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1963:45025 CAPLUS

ACCESSION NUMBER: 1988.100
DOCUMENT NUMBER: 58:45025

DOCUMENT NUMBER: 58:45025
ORIGINAL REFERENCE NO.: 58:7637e

ORIGINAL REFERENCE NO.: 56-7057c
TITLE: Aluminum fluoride manufacture

INVENTOR(S): Papp, Roger; Robert, Georges

PATENT ASSIGNEE(S): Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine

SOURCE: 5 pp.

DOCUMENT TYPE: Patent

DOCUMENT TYPE: Patent
LANGUAGE: Unavailable

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 1309300		19621116	FR	19611002
GB 1016894			GB	

AB In a process for the manuf. of **AlF₃**, partially dehydrated alumina contg. 64-90% Al₂O₃ is made to react with H₂F₂ in a fluidized process with superimposed **fluidized beds**, Al₂O₃ being introduced from the top and H₂F₂ through the 1st and 2nd bottom of the beds.

L7 ANSWER 48 OF 52 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1963:25421 CAPLUS
 DOCUMENT NUMBER: 58:25421
 ORIGINAL REFERENCE NO.: 58:4201h, 4202a
 TITLE: Dehydration of aluminum fluoride hydrates
 PATENT ASSIGNEE(S): Osterreichische Stickstoffwerke A.-G.
 SOURCE: 3 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 911837		19621128	GB	

PRIORITY APPLN. INFO.: AT 19600218
 AB **AlF₃** hydrate is dehydrated by **fluidized bed** calcination or by sluicing the hydrates into a current of air or gas in tube system. In an externally heated container at 590.degree., 80 l. air/hr. were supplied from below to maintain a **fluidized bed** of anhyd. **AlF₃** of 70 mm. diam. .times. 150 mm. height in the expanded state. **AlF₃.3H₂O** (1000 g.) at 20.degree. were continuously introduced in 1 hr. at the head of the fluidization app. The dehydrated product, which was withdrawn by means of an overflow, contained 0.2% H₂O and 67.5% F.

L7 ANSWER 49 OF 52 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1962:409294 CAPLUS
 DOCUMENT NUMBER: 57:9294
 ORIGINAL REFERENCE NO.: 57:1853c-e
 TITLE: Manufacture of alkali-free corundum of tabular crystal form
 AUTHOR(S): Locsei, Bela
 CORPORATE SOURCE: Central Res. Inst. Building Material, Budapest, Hung.
 SOURCE: Nature (1962), 194, 177-8
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable

AB The steam hydrolysis of **AlF₃** above 800.degree. produces alkali-free tabular .alpha.-corundum, along with substantial quantities of AlOF. F content of the product mixt. varies from 4.0 to 4.8%, depending on the temp. HF formed in the reaction may be used for the manuf. of **AlF₃** from Al hydroxide or hydrate below 300.degree.. Two vertical fluidizing ovens, 1 above the other, are used for recirculation of the HF. In the lower oven, **AlF₃** is fluidized with steam above 800.degree.. Tabular .alpha.-Al₂O₃ and HF leave the unit. The HF may be introduced directly into the other oven, in which Al hydroxide or hydrate is fluidized at 250-80.degree.. **AlF₃** produced in this unit may be used in the lower unit for the production of tabular .alpha.-Al₂O₃. The fluid reaction system offers relatively low investment costs with high capacity, continuous operation, uniform heat distribution in the bed, high

heat-transmission rate, simple app., and low labor requirement.

L7 ANSWER 50 OF 52 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1961:146646 CAPLUS
DOCUMENT NUMBER: 55:146646
ORIGINAL REFERENCE NO.: 55:27805e-f
TITLE: Drying of aluminum fluoride hydrates
INVENTOR(S): Schmidt, Alfred; Weinrotter, Ferdinand
PATENT ASSIGNEE(S): Osterreichische Stickstoffwerke Akt.-Ges.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AT 217009		19610911	AT	

AB **AlF₃** hydrates are dried without F losses by heating the hydrate within a few sec. to the final temp. of the desired degree of dehydration. Rapid heating is effected by a **fluidized bed** process, by introducing the hydrate in a circulating gas or air stream, or by direct or indirect heating of the material in a rotating furnace.

L7 ANSWER 51 OF 52 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1958:90037 CAPLUS
DOCUMENT NUMBER: 52:90037
ORIGINAL REFERENCE NO.: 52:15854b-c
TITLE: .alpha.-Alumina
INVENTOR(S): Roberts, Elliot J.; Jukkola, Walfred W.
PATENT ASSIGNEE(S): Dorr-Oliver Inc.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2833622		19580506	US	
GB 878827			GB	

AB To produce .alpha.-Al₂O₃, hydrated Al₂O₃ is treated by countercurrent gas-solids flow in a series of **fluidized beds** with an **AlF₃** catalyst at 1600-2000.degree.F.

L7 ANSWER 52 OF 52 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1952:33994 CAPLUS
DOCUMENT NUMBER: 46:33994
ORIGINAL REFERENCE NO.: 46:5795h-i
TITLE: Aluminum fluoride
INVENTOR(S): Edwards, Arnold J.
PATENT ASSIGNEE(S): National Smelting Co., Ltd.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 656374		19510822	GB	

AB **AlF₃** is prep'd. by passing gaseous HF upward through a **fluidized bed** of particles of Al₂O₃ and Al(OH)₃ at 350-650.degree., the heat required for raising the temp. being wholly

derived from the reaction itself if the mixt. contains a major portion of Al₂O₃. When a considerable proportion of Al(OH)₃ is present, addnl. heat is supplied by burning fuel. The reaction may be performed batchwise, but preferably is conducted in two or more stages. The beds of the aluminous material are superimposed, and the gas is passed in series up through them, while the aluminous material overflows from each bed to the one below.

=> d his

(FILE 'HOME' ENTERED AT 05:50:59 ON 26 MAR 2003)

FILE 'REGISTRY' ENTERED AT 05:51:07 ON 26 MAR 2003

FILE 'CPLUS' ENTERED AT 05:51:21 ON 26 MAR 2003

L1 59 S 354-58-5/PREP
L2 0 S L1 AND (FIXED BED OR FLUIDIZED BED)
L3 2 S L1 AND BED
L4 68897 S FIXED BED OR FLUIDIZED BED
L5 0 S L4 AND ALUMINUM FLUORIDE
L6 92 S L4 AND (ALUMINUM FLUORIDE OR ALF₃)
L7 52 S AL?/TI AND L6

=> s 16 not 17

L8 40 L6 NOT L7

=> d ti

L8 ANSWER 1 OF 40 CPLUS COPYRIGHT 2003 ACS

TI Method of siliconizing of steel articles in **fluidized bed**

=> s fluor? and 18

936538 FLUOR?

L9 32 FLUOR? AND L8

=> d ti 1-10

L9 ANSWER 1 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Method of siliconizing of steel articles in **fluidized bed**

L9 ANSWER 2 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Method of boron-nickel plating of steel parts in **fluidized bed**

L9 ANSWER 3 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Smelting solution - creating useful materials from toxic waste

L9 ANSWER 4 OF 32 CPLUS COPYRIGHT 2003 ACS

TI The Spent Pot Lining treatment and **fluoride** recycling project

L9 ANSWER 5 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Removing **fluorine** from semiconductor processing exhaust gas

L9 ANSWER 6 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Process for preparation of 1,1,1,3,3-pentafluoropropane

L9 ANSWER 7 OF 32 CPLUS COPYRIGHT 2003 ACS

TI Catalyst application in carbonaceous materials production by pyrolysis and

coking processes

- L9 ANSWER 8 OF 32 CAPLUS COPYRIGHT 2003 ACS
TI The new Ausimont process for production of hydrochlorofluorocarbons and hydrofluorocarbons: new products resulting from the Montreal Protocol
- L9 ANSWER 9 OF 32 CAPLUS COPYRIGHT 2003 ACS
TI Steam generation in a steam-utilizing process
- L9 ANSWER 10 OF 32 CAPLUS COPYRIGHT 2003 ACS
TI Method of recovering acid catalyst from acid catalyzed processes

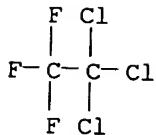
=> s fixed bed and fluidized bed
178846 FIXED
141637 BED
58505 BEDS
163038 BED
(BED OR BEDS)
16370 FIXED BED
(FIXED(W) BED)
61267 FLUIDIZED
1 FLUIDIZEDS
61267 FLUIDIZED
(FLUIDIZED OR FLUIDIZEDS)
141637 BED
58505 BEDS
163038 BED
(BED OR BEDS)
54040 FLUIDIZED BED
(FLUIDIZED(W) BED)

L10 1513 FIXED BED AND FLUIDIZED BED

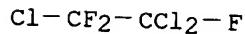
=> s l10 and (aluminum fluoride or alf3)
767020 ALUMINUM
284 ALUMINUMS
767080 ALUMINUM
(ALUMINUM OR ALUMINUMS)
214877 FLUORIDE
39599 FLUORIDES
229008 FLUORIDE
(FLUORIDE OR FLUORIDES)
6513 ALUMINUM FLUORIDE
(ALUMINUM(W) FLUORIDE)
7029 ALF3
0 L10 AND (ALUMINUM FLUORIDE OR ALF3)

L11

ACCESSION NUMBER: 1990:461673 CAPLUS
 DOCUMENT NUMBER: 113:61673
 TITLE: Heterogeneous catalytic reactions of chlorofluorocarbons
 AUTHOR(S): Blanchard, M.; Wendlinger, L.; Canesson, P.
 CORPORATE SOURCE: Fac. Sci., Univ. Poitiers, Poitiers, 86022, Fr.
 SOURCE: Applied Catalysis (1990), 59(1), 123-8
 CODEN: APCADI; ISSN: 0166-9834
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The reactions of 1,1,2-trichloro-1,2,2-trifluoroethane were studied on 3 catalysts (Cr₂O₃ on active charcoal, AlF₃, and Cr₂O₃ on AlF₃) in the presence and absence of HF. Without HF, two reactions occurred, disproportionation (exchange of halogen) and isomerization. With HF, fluorination was the main reaction, the selectivity of which (sym. or asym. compds.) was governed by the acidity of the catalyst.
 IT 354-58-5P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, from trichlorotrifluoroethane in presence of chromium oxide, aluminum fluoride and(or) hydrogen fluoride)
 RN 354-58-5 CAPLUS
 CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)

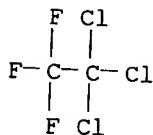


IT 76-13-1, 1,1,2-Trichloro-1,2,2-trifluoroethane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactions of, in presence of chromium oxide and aluminum fluoride and hydrogen fluoride)
 RN 76-13-1 CAPLUS
 CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)



=> d

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 354-58-5 REGISTRY
CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1,1,1-Trichloro-2,2,2-trifluoroethane
CN 1,1,1-Trichlorotrifluoroethane
CN 1,1,1-Trifluoro-2,2,2-trichloroethane
CN 1,1,1-Trifluorotrichloroethane
CN CFC 113a
CN F 113a
CN FC 113a
CN Freon 113a
CN Freon FT
CN R 113a
FS 3D CONCORD
MF C2 Cl3 F3
CI COM
LC STN Files: ANABSTR, BEILSTEIN*, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS,
CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM,
DETERM*, DIPPR*, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB,
MEDLINE, MSDS-OHS, NIOSHTIC, RTECS*, SPECINFO, TOXCENTER, USPAT2,
USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

595 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
595 REFERENCES IN FILE CAPLUS (1962 TO DATE)
26 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> s cfc
L4 59 CFC

=> s cfc 113
L5 59 CFC
7359 113
7 CFC 113
(CFC(W) 113)

=> d scan

L5 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Cyclohexane, polymer with 1,1,2-trichloro-1,2,2-trifluoroethane (9CI)
MF (C6 H12 . C2 Cl3 F3)x

CI PMS

CM 1



CM 2

Cl-CF₂-CCl₂-F

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> s 15 and 1/nc
43257058 1/NC
L6 1 L5 AND 1/NC

=> d

L6 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 76-13-1 REGISTRY
CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1,1,2-Trichloro-1,2,2-trifluoroethane
CN 1,1,2-Trichlorotrifluoroethane
CN 1,1,2-Trifluoro-1,2,2-trichloroethane
CN 1,1,2-Trifluorotrichloroethane
CN 1,2,2-Trichlorotrifluoroethane
CN Arcton 113
CN Arkalone P
CN Asahifron 113
CN CFC 113
CN Daiflon 113
CN Daiflon S 3
CN Delifrene 113
CN Delifrene LS
CN F 113
CN F 113 (refrigerant)
CN FC 113
CN FKW 113
CN Fluorocarbon 113
CN Forane 113
CN Freon 113
CN Freon 113TR-T
CN Freon TF
CN Freon TS
CN Fridohna
CN Frigen 113
CN Frigen 113A
CN Frigen 113TR
CN Frigen 113TR-N
CN Frigen 113TR-T
CN Fron 113
CN Fronsolve 113
CN Fronsolve AD 9

CN Genetron 113
 CN Halon 113
 CN Isceon 113
 CN Khladon 113
 CN Ledon 113
 CN P 113
 CN R 113
 CN R 113 (halocarbon)
 CN Refrigerant 113
 CN Refrigerant R 113
 FS 3D CONCORD
 DR 57762-34-2, 56996-61-3, 59948-56-0, 39349-94-5
 MF C2 C13 F3
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
 CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
 DIPPR*, DRUGU, EMBASE, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB,
 IPA, MEDLINE, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*,
 SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

C1-CF₂-CCl₂-F

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

4760 REFERENCES IN FILE CA (1962 TO DATE)
 31 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 4763 REFERENCES IN FILE CAPLUS (1962 TO DATE)
 88 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file caplus		SINCE FILE	TOTAL
COST IN U.S. DOLLARS		ENTRY	SESSION
FULL ESTIMATED COST		40.80	41.01

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 FILE LAST UPDATED: 24 Mar 2003 (20030324/ED)

This file contains CAS Registry Numbers for easy and accurate

substance identification.

=> s 13/prep and 16/rct
595 L3
2980858 PREP/RL
59 L3/PREP
(L3 (L) PREP/RL)
4772 L6
2503698 RCT/RL
451 L6/RCT
(L6 (L) RCT/RL)
L7 18 L3/PREP AND L6/RCT

=> s 17 and (aluminum fluoride or alf3)
766854 ALUMINUM
284 ALUMINUMS
766914 ALUMINUM
(ALUMINUM OR ALUMINUMS)
214841 FLUORIDE
39594 FLUORIDES
228971 FLUORIDE
(FLUORIDE OR FLUORIDES)
6512 ALUMINUM FLUORIDE
(ALUMINUM(W) FLUORIDE)
7029 ALF3
L8 5 L7 AND (ALUMINUM FLUORIDE OR ALF3)

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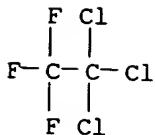
L8 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:610344 CAPLUS
DOCUMENT NUMBER: 137:156433
TITLE: Gas-phase isomerization process and an
aluminum fluoride catalyst for the
manufacture of 1,1,1-trichloro-2,2,2-trifluoroethane
from 1,1,2-trichloro-1,2,2-trifluoroethane
INVENTOR(S): Cuzzato, Paolo; Bragante, Letanzio
PATENT ASSIGNEE(S): Ausimont S.p.A., Italy
SOURCE: Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1231196	A1	20020814	EP 2002-2131	20020129
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2002151755	A1	20021017	US 2002-72873	20020212

PRIORITY APPLN. INFO.: IT 2001-MI287 A 20010213
AB A gas-phase isomerization process and an aluminum
fluoride catalyst are presented for the high-yield manuf. of
1,1,1-trichloro-2,2,2-trifluoroethane from 1,1,2-trichloro-1,2,2-
trifluoroethane.

IT 354-58-5P, 1,1,1-Trichloro-2,2,2-trifluoroethane
RL: IMF (Industrial manufacture); PREP (Preparation)
(gas-phase isomerization process and an aluminum
fluoride catalyst for the manuf. of 1,1,1-trichloro-2,2,2-
trifluoroethane from 1,1,2-trichloro-1,2,2-trifluoroethane)

RN 354-58-5 CAPLUS
CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 76-13-1, 1,1,2-Trichloro-1,2,2-trifluoroethane
RL: RCT (Reactant); RACT (Reactant or reagent)
(gas-phase isomerization process and an aluminum
fluoride catalyst for the manuf. of 1,1,1-trichloro-2,2,2-
trifluoroethane from 1,1,2-trichloro-1,2,2-trifluoroethane)

RN 76-13-1 CAPLUS
CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)

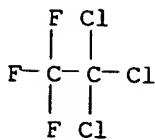
Cl—CF₂—CCl₂—F

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2001:137614 CAPLUS
DOCUMENT NUMBER: 134:282447
TITLE: Conversion of 1,1,2-trichlorotrifluoroethane to
1,1,1-trichlorotrifluoroethane and
1,1-dichlorotetrafluoroethane over aluminum-based
catalysts
AUTHOR(S): Bozorgzadeh, H.; Kemnitz, E.; Nickkho-Amiry, M.;
Skapin, T.; Winfield, J. M.
CORPORATE SOURCE: Institute of Inorganic Chemistry, Humboldt University,
Berlin, D-10115, Germany
SOURCE: Journal of Fluorine Chemistry (2001), 107(1), 45-52
PUBLISHER: Elsevier Science S.A.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Conversion of CCl₂FCCl₂F to CCl₂FCF₃ is achieved at 593–713 K under flow conditions using .beta.-AlF₃ or prefluorinated .gamma.-alumina as catalysts. Al-based catalysts favor the formation of asym. isomers in the chlorofluoroethane series, hence CCl₃CF₃ is a significant product. More highly chlorinated materials contg. .gtoreq.4 Cl atoms, and CCl₂CF₃ are minor products. Product compn. data provide evidence for a possible mechanism. An isomerization step is believed to be intramol. and is facile. The apparent fluorination step is best described as a dismutation.

IT 354-58-5P, 1,1,1-Trichlorotrifluoroethane
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. by trichlorotrifluoroethane conversion over aluminum-based catalysts)
RN 354-58-5 CAPLUS
CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 76-13-1, 1,1,2-Trichlorotrifluoroethane
 RL: PEP (Physical, engineering or chemical process); RCT
 (Reactant); PROC (Process); RACT (Reactant or reagent)
 (trichlorotrifluoroethane conversion over aluminum-based catalysts)
 RN 76-13-1 CAPLUS
 CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)

Cl-CF₂-CCl₂-F

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

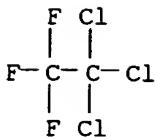
L8 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1994:133825 CAPLUS
 DOCUMENT NUMBER: 120:133825
 TITLE: Processes using aluminum fluoride catalyst compositions for preparing 1,1-dichloro-1,2,2-tetrafluoroethane
 INVENTOR(S): Manzer, Leo E.; Tebbe, Frederick N.
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA
 SOURCE: U.S., 5 pp. Cont. of U.S. Ser. No. 700,190, abandoned.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5243106	A	19930907	US 1992-865784	19920407
PRIORITY APPLN. INFO.:			US 1991-700190	19910603

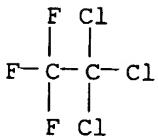
AB The title process comprises contacting a chlorofluoroethane with HF in the presence of title catalysts. Thus, HF, CCl₂FCClF₂, and Cl (5:1:1 mol ratio) was passed over an Al fluoride catalyst (prepn. given) at 375.degree. (15 s contact time) to give, inter alia, CCl₂FCClF₂ 3.8, CF₃CCl₃ 10.7, CCl₂CClF₂ 1.8, and CCl₂FCF₃ 83.3 gas chromatog. area %.
 IT 76-13-1, 1,1,2-Trichloro-1,2,2-trifluoroethane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (fluorination of, catalysts for)
 RN 76-13-1 CAPLUS
 CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME)

Cl-CF₂-CCl₂-F

IT 354-58-5P, 1,1,1-Trichloro-2,2,2-trifluoroethane
 RL: SPN (Synthetic preparation); FORM (Formation, nonpreparative);
 PREP (Preparation)
 (formation of, in prepn. of dichlorotetrafluoroethane)
 RN 354-58-5 CAPLUS
 CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)



L8 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1990:461673 CAPLUS
 DOCUMENT NUMBER: 113:61673
 TITLE: Heterogeneous catalytic reactions of chlorofluorocarbons
 AUTHOR(S): Blanchard, M.; Wendlinger, L.; Canesson, P.
 CORPORATE SOURCE: Fac. Sci., Univ. Poitiers, Poitiers, 86022, Fr.
 SOURCE: Applied Catalysis (1990), 59(1), 123-8
 CODEN: APCADI; ISSN: 0166-9834
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The reactions of 1,1,2-trichloro-1,2,2-trifluoroethane were studied on 3 catalysts (Cr₂O₃ on active charcoal, AlF₃, and Cr₂O₃ on AlF₃) in the presence and absence of HF. Without HF, two reactions occurred, disproportionation (exchange of halogen) and isomerization. With HF, fluorination was the main reaction, the selectivity of which (sym. or asym. compds.) was governed by the acidity of the catalyst.
 IT 354-58-5P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, from trichlorotrifluoroethane in presence of chromium oxide, aluminum fluoride and(or) hydrogen fluoride)
 RN 354-58-5 CAPLUS
 CN Ethane, 1,1,1-trichloro-2,2,2-trifluoro- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 76-13-1, 1,1,2-Trichloro-1,2,2-trifluoroethane
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactions of, in presence of chromium oxide and aluminum fluoride and hydrogen fluoride)
 RN 76-13-1 CAPLUS
 CN Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (8CI, 9CI) (CA INDEX NAME).

Cl-CF₂-CCl₂-F

L8 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 1978:528721 CAPLUS
 DOCUMENT NUMBER: 89:128721
 TITLE: Reaction of 1,1,2-trichloro-1,2,2-trifluoroethane and other fluorohalocarbons with aluminum halides in the presence and absence of additives. Distinction in carbonium ion character and reaction conditions between substitution and isomerization